

## MISCELLANEOUS NOTES.

**Cicindelidæ of Chile.**—Señor Eduardo Varas Arangua, an officer of the Chilean Navy, whose address is casilla 1142, Valparaiso, Chile, has sent me the following notes on Chilean Cicindelidæ. Five species only are found in this country (a statement confirmed by Dr. Walther Horn's work in *Genera Insectorum*) as follows:

**Cicindela trifasciata**, subsp. **peruviana** Cast.

**Cicindela chilensis** Br. Found from Coquimbo to Valdivia, in the mountainous region, extending to the coast only at Concepcion al Sur.

**Cicindela gormazi** Reed. Southern Chile.

**Tetracha carolina**, subsp. **chilensis** Cast. Northern Chile.

**Tetracha carolina**, subsp. **latreillei** Cast. Northern Chile.

**Pycnochila fallaciosa** (Chev.). Southern Chile.

All except *C. chilensis* are of very restricted distribution.—C. W.

LENG.

**A Note on Cremastochilus.**—Whatever may be the basis of the association which subsists between beetles of this genus and ants, the fact that such association is desired not only by the ants, which have often been observed dragging their unresisting "captives" to their nests, but is actively sought by the beetles themselves, seemed to me clearly indicated by an occurrence which fell under my observation this spring.

On May 5, 1918, a warm sunny day on which nuptial flights were generally prevalent, I stood on the summit of a ridge near Greenwood Lake, N. J., watching the struggles of several *Euphoria inda* which were beset by hordes of *Formica exsectoides*, on whose high heaped home these blundering beetles floundered. Presently a *Cremastochilus* appeared flying rapidly, and upon reaching the vicinity of the ants' nest began circling about it in ever-diminishing circles, and continually lower, until when about ten inches from the surface it closed its wings and dropped on to the heap. It was immediately seized by three or four ants, and without offering any resistance suffered itself to be dragged about more or less aimlessly, but on the whole upward and away from the margin of the nest. In a minute

another one appeared, and then another, each repeating above the ant hill the circling flight performed by the one first noted, finally dropping on to its sloping sides and undergoing a like capture. In a few minutes I had deprived the ants of this hill of seven specimens, and there were several other hills in the immediate neighborhood which were receiving their quota and supplying the cyanide bottles of my companions, Messrs. Wm. T. Davis and Ernest Shoemaker. The conclusion seems irresistible that the beetles in this instance deliberately sought the nest of the ants, with the purpose, presumably, of enjoying the association for which the genus is famed.

The species taken thus were *C. variolosus*, Kirby, *C. canaliculatus* Kirby, and *C. castaneæ* Knoch, the latter predominating in numbers. —LEWIS B. WOODRUFF.

**The Moth *Anacampsis innocuella* at Cold Spring, Long Island, N. Y.**—On June 21, 1917, twenty-nine curled leaves, each one containing a larva or pupa, were found under a single tree of *Populus grandidentata* at Cold Spring, Long Island. The larva when ready to pupate had apparently severed the leaf from the tree by cutting the petiole quite close to the blade, thus causing the leaf and itself to fall to the ground. The petiole was usually cut obliquely and about three millimeters from the blade.

Mr. Frank E. Watson has kindly compared the moths which emerged from these curled leaves in early July with allied species in the collection of the American Museum of Natural History and with the description, and identifies the insect as *Anacampsis innocuella* Zeller, of the family Gelechiidæ. The species is reported in Dyar's List of Lepidoptera, 1902, from Colorado and Texas, and in the Proceedings of the U. S. Nat. Museum, Vol. XXV, p. 406, the same author states: "The larvæ occurred as leaf rollers on the broad-leaved cottonwood (*Populus fremontii wislizeni*) at Denver. The leaf is neatly rolled to several turns, forming a remote spiral, held with cross bands of silk throughout. The end is open, and the larva can be seen in the center. Sometimes several leaves are involved."

In the Proceedings of the U. S. Nat. Museum, Vol. XXV, pp. 767-938, 1903, Mr. August Busck gives a revision of the American moths of the family Gelechiidæ, and says of *A. innocuella* that it closely resembles the European *A. populælla*, and continues: "In the National

Museum is a series, identical with the types, bred from leaves of cottonwood received from Wyoming; also a large series bred from cottonwood in Colorado by Dr. Dyar. The larva rolls the leaves in the same fashion as does the European *populicella*. Zeller's types are from Texas."

In the New Jersey List, 1910, W. D. Kearfott reports the insect from Essex County, larvæ in "curled leaves of poplar, not rare."

None of these authors report the curled leaves lying on the ground under the tree, as at Cold Spring, which may have been an unusual occurrence and due to the effect of some particularly vigorous summer breeze.—WM. T. DAVIS.

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### BOOK NOTICE.

*A Year of Costa Rican Natural History.* By AMELIA SMITH CALVERT and PHILIP POWELL CALVERT. Octavo, pp. 577, with numerous half tone illustrations and map. The Macmillan Co., New York, 1917. Price \$3.00.

This is a book of details and is carefully written. There is rarely an animal or a plant mentioned that is not accompanied by at least a short description of its more striking features. The accounts of plants are particularly numerous, and many of the illustrations are of interesting trees and flowers. A systematic list of plants and animals mentioned, occupies twelve pages near the end of the volume, and the list of Odonata is no doubt most complete, as that order received considerable attention among insects. There is a list of literature relating to the natural history of Costa Rica; also a list of the papers based in whole or in part on the collections made by the authors during their journey. The features of the country are described with much care, and the different localities compared. This is also very useful, for there have been but few naturalists or observers who have given sufficient details to satisfy future generations. Every country changes gradually, the forests often disappear, even some of the insects become extinct, and we can well imagine the lasting interest that will be taken in the natural history of Costa Rica as it was in the days of the Calverts.—W. T. D.